What is claimed:

1. A flexible, continuous non-abrasive sheet disk comprising a flexible polymeric or metal backing sheet having an annular band array of non-abrasive raised island structures, the structures comprising islands of a first structural material having a raised flat top surface, wherein the total thickness of all islands measured from the flat top surface of each island to the bottom support surface of the backing sheet has a standard deviation in island thickness of less than 0.02 mm.

2. The island disk of claim 1 where the array of non-abrasive islands is made up of circular island shapes.

3. The island disk of claim 1 wherein the disk non-abrasive islands have a standard deviation in islands thickness of less than 0.013 mm.

4. A flexible, continuous abrasive sheet disk comprising a flexible polymeric sheet or flexible metal backing sheet having an annular band array of raised abrasive structures where an inner annular band radius is greater than 30% of an outer annular band radius, the abrasive structures comprising islands of a first structural material having a raised flat top surface, the island top surface having a top coating of at least a monolayer of abrasive particles or abrasive agglomerates supported in a polymeric resin, wherein heights of all islands measured from the flat top surface of each abrasive coated island to the island-side surface of the backing sheet have a standard deviation in abrasive particle coated island height of less than 0.03 mm.

5. The abrasive disk of claim 4 wherein the island height has a standard deviation in abrasive particle coated island of less than 0.01 mm.

6. The abrasive disk of claim 4 where the annular array of islands is made up of circular island shapes.

7. The flexible abrasive disk of claim 4 wherein the island structures are top coated with a slurry mixture comprising abrasive particles or abrasive agglomerates and a polymer resin.

8. A process of resin coating the abrasive disk of claim 4 wherein top exposed surfaces of the island foundation structures are precision thickness polymeric resin coated by a sheet transfer coating process where a liquid-state resin coated transfer sheet is pressed into conformation in uniform contact with the nominally flat top surfaces of the array of raised islands until the resin wets the full top surface area of each island, after which wetting the coated transfer sheet is removed, leaving at least 5% of the resin within the island areas of contact attached as a uniform layer on the island top surfaces, after which abrasive particles or abrasive agglomerates are deposited onto the wet resin coated islands wherein the particles or agglomerates are supported in the polymeric resin.

9. A process of abrasive slurry coating the abrasive disk of claim 4 wherein top exposed surfaces of the island foundation structures are precision thickness abrasive slurry resin mixture coated by a sheet transfer coating process where a liquid-state abrasive resin slurry mixture coated transfer sheet, the slurry mixture comprising abrasive particles or abrasive agglomerates and a polymer resin, is pressed into conformation in uniform contact with the nominally flat top surfaces of the array of raised islands until the slurry mixture wets the full top surface area of each island, after which wetting the coated transfer sheet is removed, leaving at least 5% of the abrasive slurry mixture within the island areas of contact attached as a uniform layer on the island top surfaces.

10. The flexible abrasive disk of claim 4 wherein the height of the islands is from 0.1 to 1.0 mm.

11. The flexible abrasive disk of claim 4 wherein the coated abrasive disk is a lapping film used to abrasively flat lap a workpiece surface.

12. A flexible, continuous abrasive sheet disk according to claim 4, wherein the total thickness of all islands measured from the flat top surface of the islands to the bottom support surface of the backing sheet has a standard deviation in islands thickness of less than 0.01 mm.

13. The abrasive disk of claim 12 where the annular array of islands is made up of circular island shapes.

14. The flexible abrasive disk of claim 12 wherein the island structures are top coated with a slurry mixture comprising abrasive particles or abrasive agglomerates and a polymer resin.

15. A process of resin coating the abrasive disk of claim 12 wherein top exposed surfaces of the island foundation structures are precision thickness polymeric resin coated by a sheet transfer coating process where a liquid-state resin coated transfer sheet is pressed into conformation in uniform contact with the nominally flat top surfaces of the array of raised islands until the resin wets the full top surface area of each island, after which wetting the coated transfer sheet is removed, leaving at least 5% of the resin within the island areas of contact attached as a uniform layer on the island top surfaces, after which abrasive particles or abrasive agglomerates are deposited onto the wet resin coated islands wherein the particles or agglomerates are supported in the polymeric resin .

16. A process of abrasive slurry coating the abrasive disk of claim 12 wherein top exposed surfaces of the island foundation structures are precision thickness abrasive slurry resin mixture coated by a sheet transfer coating process where a liquid-state abrasive resin slurry mixture coated transfer sheet, the slurry mixture comprising abrasive particles or abrasive agglomerates and a polymer resin, is pressed into conformation in uniform contact with the nominally flat top surfaces of the array of raised islands until the slurry mixture wets the full top surface area of each island, after which wetting the coated transfer sheet is removed, leaving at least 5% of the abrasive slurry mixture within the island areas of contact attached as a uniform layer on the island top surfaces.

17. A process wherein the abrasive disk of claim 12 is attached to a flat platen surface by the use of vacuum wherein the vacuum reduced atmospheric pressure is provided on the back support side of the disk sheet thereby attaching the disk flat surface in flat contact to the platen flat surface.

18. The flexible abrasive disk of claim 12 wherein the coated abrasive disk is a lapping film used to abrasively flat lap a workpiece surface.

19. The abrasive disk of claim 12 wherein the total thickness of all islands has a standard deviation in islands thickness of less than 0.003 mm.

20. A flexible, continuous abrasive sheet disk comprising a flexible polymeric sheet or flexible metal backing sheet having an annular band array of raised abrasive structures where an inner band array radius is greater than 30% of an outer band array radius, the abrasive structures comprising islands of a first structural material having a raised flat top surface, the top surface having at least a monolayer of abrasive particles or abrasive agglomerates supported in a polymeric resin, wherein the total thickness of all islands measured from the flat top surface of the islands to the bottom support surface of the backing sheet has a standard deviation in islands thickness of less than 80% of the average diameter of the abrasive particles or abrasive agglomerates.

21. The abrasive disk of claim 20 where the annular array of islands is made up of circular island shapes.

22. The flexible abrasive disk of claim 20 wherein the island structures are top coated with a slurry mixture comprising abrasive particles or abrasive agglomerates and a polymer resin.

23. A process of applying resin coating to form the at least monolayer in the abrasive disk of claim 20 wherein top exposed surfaces of the island foundation structures are precision thickness polymeric resin coated by a sheet transfer coating process where a liquid-state resin coated transfer sheet is pressed into conformation in uniform contact with the nominally flat top

surfaces of the array of raised islands until the resin wets the full top surface area of each island, after which wetting the coated transfer sheet is removed, leaving at least 5% of the resin within the island areas of contact attached as a uniform layer on the island top surfaces, after which abrasive particles or abrasive agglomerates are deposited onto the wet resin coated islands wherein the particles or agglomerates are supported in the polymeric resin.

24. A process of applying abrasive slurry coating to form the at least a monolayer in the abrasive disk of claim 20 wherein top exposed surfaces of the island foundation structures are precision thickness abrasive slurry resin mixture coated by a sheet transfer coating process where a liquid-state abrasive resin slurry mixture coated transfer sheet, the slurry mixture comprising abrasive particles or abrasive agglomerates and a polymer resin, is pressed into conformation in uniform contact with the nominally flat top surfaces of the array of raised islands until the slurry mixture wets the full top surface area of each island, after which wetting the coated transfer sheet is removed, leaving at least 5% of the abrasive slurry mixture within the island areas of contact attached as a uniform layer on the island top surfaces.

25. A process comprising attaching the abrasive disk of claim 20 to a flat platen surface by the use of vacuum wherein the vacuum reduced atmospheric pressure is provided on the back support side of the disk sheet thereby attaching the disk flat surface in flat contact to the platen flat surface.

26. The flexible abrasive disk of claim 20 wherein the coated abrasive disk is a lapping film used to abrasively flat lap a workpiece surface.

27. The abrasive disk of claim 20 where the thickness of all islands measured from the flat top surface of the islands to the bottom support surface of the backing sheet has a standard deviation in islands thickness of less than 50% of the average diameter of the abrasive particles or abrasive agglomerates.

28. The abrasive disk of claim 20 where the thickness of all islands measured from the flat top surface of the islands to the bottom support surface of the backing sheet has a standard

deviation in islands thickness of less than 30% of the average diameter of the abrasive particles or abrasive agglomerates.

29. A flexible, continuous abrasive sheet web comprising a flexible polymeric start or flexible metal backing web sheet having an full web width array of raised abrasive structures, the abrasive structures comprising islands of a first structural material having a raised flat top surface, the top surface having at least a monolayer of abrasive particles or abrasive agglomerates supported in a polymeric resin, wherein the heights of all islands measured from the raised flat top surface of the abrasive coated islands to an island-side flat surface of the web backing sheet have a standard deviation in abrasive particle coated islands height of less than 0.01 mm.

30. The abrasive web of claim 29 where the full web width array of islands is made up of circular island shapes.

31. The flexible abrasive web of claim 29 wherein the island structures are top coated with a monolayer of diamonds or other hard abrasive particles or abrasive agglomerates at least 7 up to 400 micrometers in average particle diameter.

32. The flexible abrasive web of claim 29 wherein the island structures are top coated with a slurry mixture comprising abrasive particles or abrasive agglomerates and a polymer resin.

33. The flexible abrasive web of claim 29 wherein the raised island structure material comprises a particle filled polymer resin or a non-particle filled polymer resin.

34. The island structures of claim 33 wherein the island material flat top surface is formed by mold plates or the surface is formed by mold rolls or the surface is machined or the surface is abrasively ground to a precise raised island structure total web thickness wherein the web thickness is measured from the flat top surface of the non-abrasive coated island material structure to the bottom support surface of the web backing sheet.

35. A process of applying a resin coating to form the at least monolayer of the abrasive web of claim 29 wherein top exposed surfaces of the island foundation structures are precision thickness polymeric resin coated by a web sheet transfer coating process where a liquid-state resin coated transfer web sheet is pressed into conformation in uniform contact with the nominally flat top surfaces of the full web width array of raised islands until the resin wets the full top surface area of each island, after which wetting the coated transfer web sheet is removed, leaving at least 5% of the resin within the island areas of contact attached as a uniform layer on the island top surfaces, after which abrasive particles or abrasive agglomerates are deposited onto the wet resin coated islands wherein the particles or agglomerates are supported in the polymeric resin.

36. A process of applying a resin coating to form the at least monolayer of the abrasive web of claim 29 wherein top exposed surfaces of the island foundation structures are precision thickness abrasive slurry resin mixture coated by a web sheet transfer coating process where a liquid-state abrasive resin slurry mixture coated transfer web sheet, the slurry mixture comprising abrasive particles or abrasive agglomerates and a polymer resin, is pressed into conformation in uniform contact with the nominally flat top surfaces of the full web width array of raised islands until the slurry mixture wets the full top surface area of each island, after which wetting the coated transfer web sheet is removed, leaving at least 5% of the abrasive slurry mixture within the island areas of contact attached as a uniform layer on the island top surfaces.

37. A flexible, continuous abrasive sheet web comprising a flexible polymeric sheet or flexible metal backing web sheet having an full web width array of raised abrasive structures, the abrasive structures comprising islands of a first structural material having a raised flat top surface, the top surface having at least a monolayer of abrasive particles or abrasive agglomerates supported in a polymeric resin, wherein the total web thickness of all islands measured from the flat top surface of the abrasive coated islands to an upper surface of the bottom support surface of the backing sheet has a standard deviation in abrasive particle coated islands thickness of less than 0.03 mm.

38. The abrasive web of claim 37 where the full web width array of islands is made up of circular island shapes.

39. The flexible abrasive web of claim 37 wherein the island structures are top coated with a monolayer of diamonds or other hard abrasive particles or abrasive agglomerates at least 7 up to 400 micrometers in average particle diameter.

40. The flexible abrasive web of claim 37 wherein the island structures are top coated with a slurry mixture comprising abrasive particles or abrasive agglomerates and a polymer resin.

41. The flexible abrasive web of claim 37 wherein the raised island structure material comprises a particle filled polymer resin or a non-particle filled polymer resin.

42. The island structures of claim 41 wherein the island material flat top surface is formed by mold plates or the surface is formed by mold rolls or the surface is machined or the surface is abrasively ground to a precise raised island structure total web thickness wherein the web thickness is measured from the flat top surface of the non-abrasive coated island material structure to the bottom support surface of the web backing sheet.

43. A process of applying resin coating to form the at least monolayer of the abrasive web of claim 37 wherein top exposed surfaces of the island foundation structures are precision thickness polymeric resin coated by a web sheet transfer coating process where a liquid-state resin coated transfer web sheet is pressed into conformation in uniform contact with the nominally flat top surfaces of the full web width array of raised islands until the resin wets the full top surface area of each island, after which wetting the coated transfer web sheet is removed, leaving at least 5% of the resin within the island areas of contact attached as a uniform layer on the island top surfaces, after which abrasive particles or abrasive agglomerates are deposited onto the wet resin coated islands wherein the particles or agglomerates are supported in the polymeric resin .

44. A process of applying abrasive slurry to form the at least monolayer coating the abrasive web of claim 37 wherein top exposed surfaces of the island foundation structures are precision thickness abrasive slurry resin mixture coated by a web sheet transfer coating process where a liquid-state abrasive resin slurry mixture coated transfer web sheet, the slurry mixture comprising abrasive particles or abrasive agglomerates and a polymer resin, is pressed into conformation in uniform contact with the nominally flat top surfaces of the full web width array of raised islands until the slurry mixture wets the full top surface area of each island, after which wetting the coated transfer web sheet is removed, leaving at least 5% of the abrasive slurry mixture within the island areas of contact attached as a uniform layer on the island top surfaces.

45. A flexible, continuous abrasive sheet web comprising a flexible polymeric sheet or flexible metal backing web sheet having an full web width array of raised abrasive structures, the abrasive structures comprising islands of a first structural material having a raised flat top surface, the flat top surface having at least a monolayer of abrasive particles or abrasive agglomerates supported in a polymeric resin, where the total thickness of all islands measured from the flat top surface of the abrasive coated islands to the bottom support surface of the backing sheet has a standard deviation in abrasive particle coated islands thickness of less than 80% of the average diameter of the abrasive particles or abrasive agglomerates.

46. The abrasive web of claim 45 where the full web width array of islands is made up of circular island shapes.

47. The flexible abrasive web of claim 45 wherein the island structures are top coated with a monolayer of diamonds or other hard abrasive particles or abrasive agglomerates at least 7 up to 400 micrometers in average particle diameter.

48. The flexible abrasive web of claim 45 wherein the island structures are top coated with a slurry mixture comprising abrasive particles or abrasive agglomerates and a polymer resin.

49. The flexible abrasive web of claim 45 wherein the raised island structure material comprises a particle filled polymer resin or a non-particle filled polymer resin.

50. The island structures of claim 49 wherein the island material flat top surface is formed by mold plates or the surface is formed by mold rolls or the surface is machined or the surface is abrasively ground to a precise raised island structure total web thickness wherein the web thickness is measured from the flat top surface of the non-abrasive coated island material structure to the bottom support surface of the web backing sheet.

51. A process of applying resin to form the at least monolayer coating of the abrasive web of claim 45 wherein top exposed surfaces of the island foundation structures are precision thickness polymeric resin coated by a web sheet transfer coating process where a liquid-state resin coated transfer web sheet is pressed into conformation in uniform contact with the nominally flat top surfaces of the full web width array of raised islands until the resin wets the full top surface area of each island, after which wetting the coated transfer web sheet is removed, leaving at least 5% of the resin within the island areas of contact attached as a uniform layer on the island top surfaces, after which abrasive particles or abrasive agglomerates are deposited onto the wet resin coated islands wherein the particles or agglomerates are supported in the polymeric resin.

52. A process of applying abrasive slurry to form the at least monolayer coating of the abrasive web of claim 45 wherein top exposed surfaces of the island foundation structures are precision thickness abrasive slurry resin mixture coated by a web sheet transfer coating process where a liquid-state abrasive resin slurry mixture coated transfer web sheet, the slurry mixture comprising abrasive particles or abrasive agglomerates and a polymer resin, is pressed into conformation in uniform contact with the nominally flat top surfaces of the full web width array of raised islands until the slurry mixture wets the full top surface area of each island, after which wetting the coated transfer web sheet is removed, leaving at least 5% of the abrasive slurry mixture within the island areas of contact attached as a uniform layer on the island top surfaces.

53. The flexible abrasive web of claim 45 wherein the continuous web is shape-cut to form circular abrasive disks.

54. The flexible abrasive web of claim 45 wherein the continuous web is shape-cut to form rectangular abrasive sheets.

55. A flexible, continuous abrasive rectangular shaped sheet article comprising a flexible polymeric sheet or flexible metal backing sheet having a full sheet surface area array of raised abrasive structures, the abrasive structures comprising islands of a first structural material having a raised flat top surface, the top surface having at least a monolayer of abrasive particles or abrasive agglomerates supported in a polymeric resin, wherein the total thickness of all rectangular sheet islands measured from the flat top surface of the abrasive coated islands to the bottom support surface of the rectangular backing sheet has a standard deviation in abrasive particle coated islands thickness of less than 0.03 mm.

56. The rectangular abrasive sheet article of claim 55 where the full article area array of islands is made up of circular island shapes.

57. A process wherein the rectangular abrasive sheet article of claim 55 is attached to a flat platen surface by the use of vacuum wherein the vacuum reduced atmospheric pressure is provided on the back support side of the rectangular sheet thereby attaching the sheet flat surface in flat contact to the platen flat surface.

58. The rectangular abrasive sheet article of claim 55 wherein the coated abrasive sheet is a lapping film used to abrasively flat lap a workpiece surface.

59. The rectangular flexible abrasive sheet article of claim 55 wherein the island structures are top coated with a monolayer of diamonds or other hard abrasive particles or abrasive agglomerates at least 7 up to 400 micrometers in average particle diameter.

60. The rectangular flexible abrasive sheet article of claim 55 wherein the island structures are top coated with a slurry mixture comprising abrasive particles or abrasive agglomerates and a polymer resin.

61. The rectangular flexible abrasive sheet of claim 55 wherein the raised island structure material comprises a particle filled polymer resin or a non-particle filled polymer resin.

62. The rectangular sheet island structures of claim 61 wherein the island material flat top surface is formed by mold plates or the surface is formed by mold rolls or the surface is machined or the surface is abrasively ground to a precise raised island structure total sheet thickness wherein the rectangular sheet thickness is measured from the flat top surface of the non-abrasive coated island material structure to the bottom support surface of the rectangular backing sheet.

63. A process of applying resin to form the at least monolayer of coating the abrasive rectangular sheet of claim 55 wherein top exposed surfaces of the island foundation structures are precision thickness polymeric resin coated by a sheet transfer coating process where a liquid-state resin coated transfer sheet is pressed into conformation in uniform contact with the nominally flat top surfaces of the article full array of raised islands until the resin wets the full top surface area of each island, after which wetting the coated transfer sheet is removed, leaving at least 5% of the resin within the island areas of contact attached as a uniform layer on the island top surfaces, after which abrasive particles or abrasive agglomerates are deposited onto the wet resin coated islands wherein the particles or agglomerates are supported in the polymeric resin.

64. A process of applying abrasive slurry to form the at least monolayer of the coating the abrasive rectangular sheet of claim 55 wherein top exposed surfaces of the island foundation structures are precision thickness abrasive slurry resin mixture coated by a sheet transfer coating process where a liquid-state abrasive resin slurry mixture coated transfer sheet, the slurry mixture comprising abrasive particles or abrasive agglomerates and a polymer resin, is pressed into conformation in uniform contact with the nominally flat top surfaces of the article full array of raised islands until the slurry mixture wets the full top surface area of each island, after which wetting the coated transfer sheet is removed, leaving at least 5% of the abrasive slurry mixture within the island areas of contact attached as a uniform layer on the island top surfaces.

65. A flexible, continuous abrasive sheet rectangular shaped article comprising a flexible polymeric or metal backing web sheet having a full sheet surface area array of raised abrasive structures, the abrasive structures comprising islands of a first structural material having a raised flat top surface, the top surface having at least a monolayer of abrasive particles or abrasive agglomerates supported in a polymeric resin, wherein the total thickness of all islands measured from the flat top surface of the abrasive coated islands to the bottom support island-side surface of the backing sheet has a standard deviation in abrasive particle coated islands thickness of less than 80% of the average diameter of the abrasive particles or abrasive agglomerates.

66. The rectangular abrasive sheet of claim 65 where the full article area array of islands is made up of circular island shapes.

67. A process wherein the rectangular abrasive sheet article of claim 65 is attached to a flat platen surface by the use of vacuum wherein the vacuum reduced atmospheric pressure is provided on the back support side of the rectangular sheet thereby attaching the sheet flat surface in flat contact to the platen flat surface.

68. The rectangular abrasive sheet article of claim 65 wherein the coated abrasive sheet is a lapping film used to abrasively flat lap a workpiece surface.

69. The rectangular flexible abrasive sheet of claim 65 wherein the island structures are top coated with a monolayer of diamonds or other hard abrasive particles or abrasive agglomerates at least 7 up to 400 micrometers in average particle diameter.

70. The rectangular flexible abrasive sheet of claim 65 wherein the island structures are top coated with a slurry mixture comprising abrasive particles or abrasive agglomerates and a polymer resin.

71. The rectangular flexible abrasive sheet of claim 65 wherein the raised island structure material comprises a particle filled polymer resin or a non-particle filled polymer resin.

72. The rectangular sheet island structures of claim 71 wherein the island material flat top surface is formed by mold plates or the surface is formed by mold rolls or the surface is machined or the surface is abrasively ground to a precise raised island structure total sheet thickness wherein the rectangular sheet thickness is measured from the flat top surface of the non-abrasive coated island material structure to the bottom support surface of the rectangular backing sheet.

73. A process of applying resin to form the at least monolayer of the coating the abrasive rectangular sheet of claim 65 wherein top exposed surfaces of the island foundation structures are precision thickness polymeric resin coated by a sheet transfer coating process where a liquid-state resin coated transfer sheet is pressed into conformation in uniform contact with the nominally flat top surfaces of the article full array of raised islands until the resin wets the full top surface area of each island, after which wetting the coated transfer sheet is removed, leaving at least 5% of the resin within the island areas of contact attached as a uniform layer on the island top surfaces, after which abrasive particles or abrasive agglomerates are deposited onto the wet resin coated islands wherein the particles or agglomerates are supported in the polymeric resin.

74. A process of applying abrasive slurry to form the at least monolayer of the coating the abrasive rectangular sheet of claim 65 wherein top exposed surfaces of the island foundation structures are precision thickness abrasive slurry resin mixture coated by a sheet transfer coating process where a liquid-state abrasive resin slurry mixture coated transfer sheet, the slurry mixture comprising abrasive particles or abrasive agglomerates and a polymer resin, is pressed into conformation in uniform contact with the nominally flat top surfaces of the article full array of raised islands until the slurry mixture wets the full top surface area of each island, after which wetting the coated transfer sheet is removed, leaving at least 5% of the abrasive slurry mixture within the island areas of contact attached as a uniform layer on the island top surfaces.